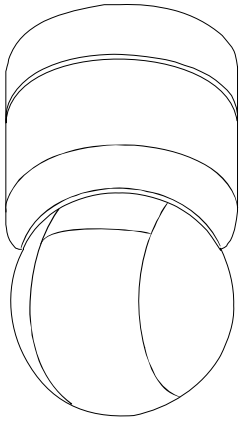
SpeedDome® Ultra VII EIS Day/Night Camera Dome Configuration Utility

Operator's Manual Supplement



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About this Supplement

This supplement provides detailed information about SpeedDome Ultra VII with EIS (Electronic Image Stabilization) camera dome features that are not currently covered in your operator's manual.

This supplement supports information found in the Day/Night Camera Dome Configuration Utility Operator's Manual, 8200-0184-04.

NOTE: Keep this supplement with your operator's manual for reference purposes.

If you need assistance...

Contact your Sales Representative.

SpeedDome Ultra VII EIS Features

EIS (Electronic Image Stabilization) technology works to overcome unsteady or blurred video images from camera movement caused by wind, vibration, and similar conditions.

The SpeedDome Ultra VII with EIS provides the following features with firmware version 0710-0532-0202 and newer.

- Electronic Image Stabilization
- 16 Sequences
- Up to 16 Patterns
- Ability to change camera functions for each Preset.

Updated information is also provided for SensorNet, RS-422, Manchester, and UTC matrix switchers and controllers.

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Menu Programming Navigation

The SpeedDome Ultra VII with EIS is programmed from on-screen menus that are accessible through your controller (keyboard, virtual keyboard, or Touch Tracker®).

The starting point for programming is the ***Configuration Menu***. To access the menu on most controllers press and hold the following buttons in sequence:

Iris Open > **Focus Far** > **Zoom Out**

(Consult your keyboard manual for instructions if you are unable to access programming menu.)

When programming dome functions, the primary methods of navigation, item selection, and value increases or decreases are:

Joystick. The joystick allows you to move the cursor—represented by highlighting—around the menus. You can select a field when it is highlighted.

Focus Far button. Pressing the **Focus Far** button selects or enables a choice on a highlighted field.

Zoom In/Out button. Pressing the **Zoom In/Out** button scrolls a pre-determined list of values either up or down in a highlighted field.

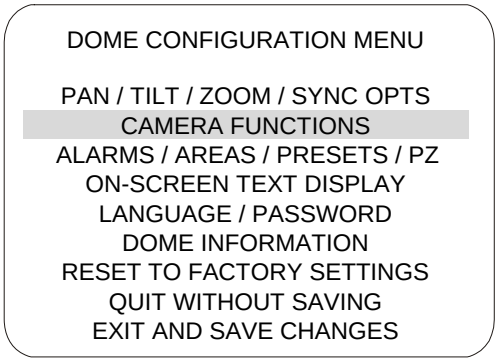
Setting Up EIS

You can turn off EIS or adjust the EIS sensitivity level for all SpeedDome VII EIS cameras on your system through the ***Camera Functions*** screen.

Follow the steps below:

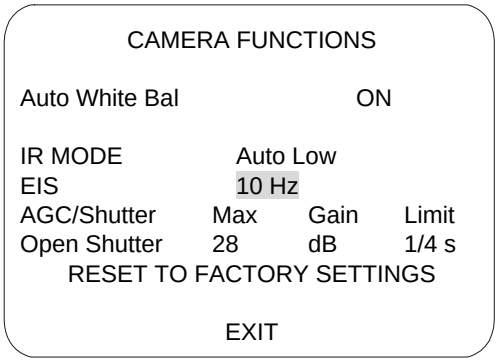
1. Access the ***Dome Configuration Menu*** (Figure 1) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 1



2. Use the joystick to highlight ***Camera Functions*** and press **Focus Far** to select. The ***Camera Functions*** screen appears (Figure 2).

Figure 2



3. Make your desired changes. EIS settings provide the following choices:

   - 10 Hz = Default setting designed to stabilize the dome when unwanted dome movements are at 10 Hz.
   - 5 Hz = Designed to stabilize the dome when unwanted dome movements are at 5 Hz.
   - Off = Turns off Electronic Image Stabilization.

   For further details on the ***Camera Functions*** screen, consult Chapter 3 of the Day/Night Camera Dome Configuration Utility Operator's Manual, 8200-0184-04.

Changing Camera Functions within Presets

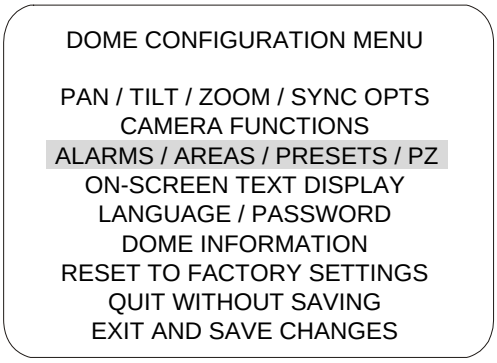
When Presets are created, they adopt the dome parameters defined in the ***Camera Functions*** screen. You can now customize camera functions for each Preset by accessing the ***Camera Functions*** screen from the ***Preset*** screen.

Note: If you change the parameters in the ***Camera Functions Menu*** for an existing Preset, you will need to reprogram the Preset to save the changes.

Follow the steps below to change camera functions with Presets:

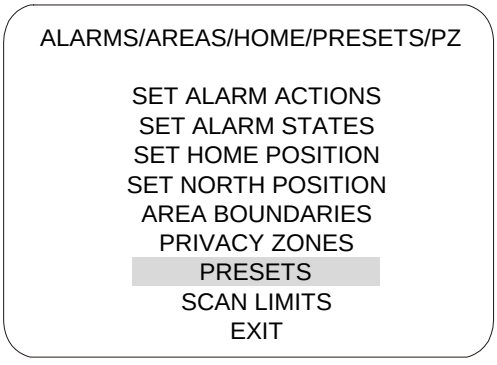
1. Access the ***Dome Configuration Menu*** (Figure 3) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 3.



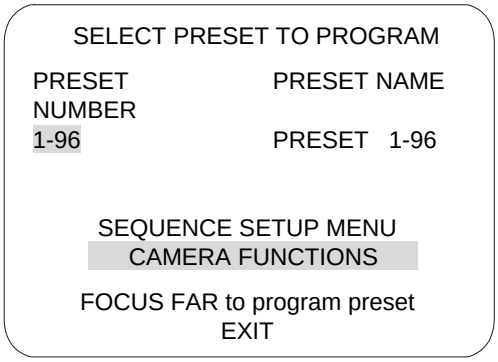
2. Use the joystick to highlight ***Alarms / Areas / Home / Presets / PZ*** and Press **Focus Far** to select. The ***Alarms / Areas / Home / Presets / PZ*** screen appears (Figure 4).

Figure 4.



3. Use the joystick to highlight ***Presets*** and press **Focus Far** to select. The ***Select Preset To Program*** screen appears (Figure 5).

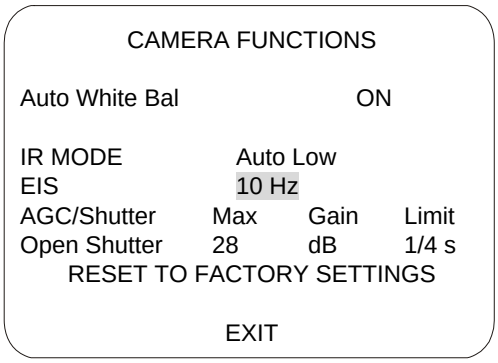
Figure 5.



4. Use the joystick to highlight the PRESET NUMBER field and press the **Zoom In/Out** button until your desired Preset number appears.

5. Use the joystick to highlight Camera Functions and press the **Focus Far** button. The Camera Functions screen appears (Figure 6).

Figure 6.



6. Make your desired changes. EIS settings provide the following choices:

   - 10 Hz = Default setting designed to stabilize the dome when unwanted dome movements are at 10 Hz.
   - 5 Hz = Designed to stabilize the dome when unwanted dome movements are at 5 Hz.
   - Off = Turns off Electronic Image Stabilization.

7. Use the joystick to highlight EXIT and press the Focus Far button to select. The Select Preset to Program screen appears.

8. Program (or reprogram) the Preset by selecting FOCUS FAR to program preset (see Note above).

   For further details on the ***Camera Functions*** screen, consult Chapter 3 of the Day/Night Camera Dome Configuration Utility Operator's Manual, 8200-0184-04.

   Note: Camera Function settings carry forward from the last Preset created to the next Preset created. You can change these settings on the next Preset when creating the next Preset.

Return to Auto After Calling a Preset

When calling a Preset, the SpeedDome Ultra VII EIS camera adopts the IR Mode and EIS setting uniquely created for that Preset. When an operator moves the dome from its Preset position, the dome can return to global IR Mode and EIS settings only if programmed to do so through the ***Return to Auto*** screen.

Follow the steps below to program ***Return to Auto***:

1. Access the ***Dome Configuration Menu*** (Figure 7) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 7

DOME CONFIGURATION MENU

PAN / TILT / ZOOM / SYNC OPTS
CAMERA FUNCTIONS
ALARMS / AREAS / PRESETS / PZ
ON-SCREEN TEXT DISPLAY
LANGUAGE / PASSWORD
DOME INFORMATION
RESET TO FACTORY SETTINGS
QUIT WITHOUT SAVING
EXIT AND SAVE CHANGES

2. Use the joystick to highlight ***Pan / Tilt / Zoom / Sync Opts*** and Press **Focus Far** to select. The ***Pan / Tilt / Zoom / Sync Opts*** screen appears (Figure 8).

Figure 8

PAN / TILT / ZOOM / SYNC OPTS

PROPORTIONAL FLIP	OFF
1ST ZOOM STOP X	35
MAX TOTAL ZOOM X	92
LINE LOCK	ON
FREEZE-FRAME	OFF

RETURN TO AUTO

RESET TO FACTORY SETTINGS
EXIT

3. Use the joystick to highlight ***Return to Auto*** and Press **Focus Far** to select. The ***Return to Auto*** screen appears (Figure 9).

Figure 9

RETURN TO AUTO

FOCUS	ON/OFF
IRIS	ON/OFF
EIS	ON/OFF
IR MODE	ON/OFF

RESET TO FACTORY SETTINGS
EXIT

4. Use the joystick to highlight each field (**Focus, Iris, EIS,** and **IR Mode**). Select either **On** of **Off** as your global camera default setting for each field.

5. Use the joystick to highlight EXIT and press **Focus Far** to select. When you reach the Dome Configuration Menu, highlight EXIT AND SAVE CHANGES and press **Focus Far**.

Note: the **Reset to Factory Settings** field resets only the fields on the ***Return To Auto*** screen.

Programming Sequences

A Sequence is a sequential display of multiple camera Presets. Sequences provide a methodical and effective way to monitor multiple areas of interest by switching to different Presets automatically. Sequences are programmed from the ***Select Preset to Program*** screen.

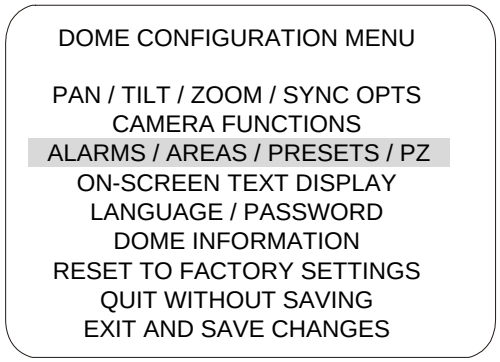
Sequences are created by identifying Preset views to include in the Sequence and specifying a dwell time that controls how long each Preset remains on screen before switching to another Preset. You can create up to 16 Sequences, each with 16 steps (Presets).

Steps to Programming Sequences

Follow the steps below to program Sequences.

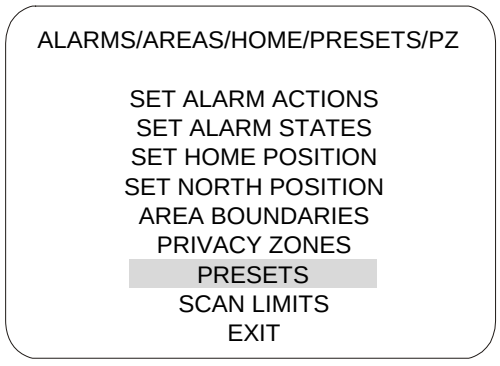
1. Access the ***Dome Configuration Menu*** (Figure 10.) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 10.



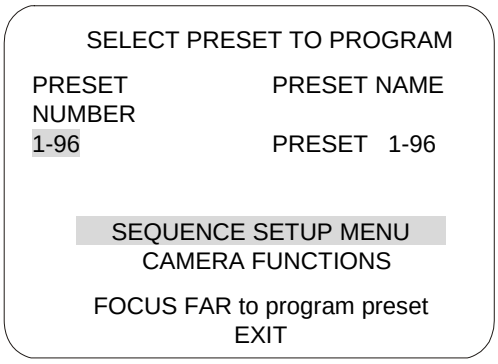
2. Use the joystick to highlight ***Alarms / Areas / Home / Presets/PZ*** and Press **Focus Far** to select. The ***Alarms / Areas / Home / Presets / PZ*** screen appears (Figure 11.).

Figure 11.



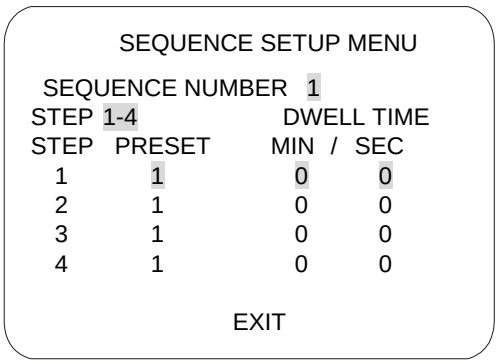
3. Use the joystick to highlight ***Presets*** and press **Focus Far** to select. The ***Select Preset to Program*** screen appears (Figure 12.).

Figure 12.



4. Use the joystick to highlight ***Sequence Setup Menu*** and press **Focus Far** to select. The ***Sequence Setup Menu*** screen appears (Figure 13.).

Figure 13.



5. Use the Joystick to highlight the SEQUENCE NUMBER field. Press **Zoom In/Out** to change values (1-16).
6. Use the joystick to highlight the STEP field. Press **Zoom In/Out** to scroll through available steps. Steps are displayed in groups of 1-4, 5-8, 6-12, and 13-16.
7. Use the joystick to highlight the PRESET field and press **Zoom In/Out** until the desired Preset number appears (1-96).
8. Use the joystick to highlight the DWELL TIME MIN field and press **Zoom In/Out** until the number of minutes you want the Preset to remain on screen appears (0-10 minutes).
9. Use the joystick to highlight the DWELL TIME SEC field and press **Zoom In/Out** until the number of seconds you want the Preset to remain on screen appears (0-60 seconds in 10-second increments).
10. Repeat steps 7 through 9 above until the first four presets have been selected for steps 1-4.

If more Presets are desired in the Sequence, use the joystick to highlight the STEP field and press **Zoom In/Out** to display steps 5-8, 6-12 or 13-16. Add the Preset selection to fill each step.

11. When finished, use the joystick to highlight EXIT and press **Focus Far** to select.
12. At the ***Dome Configuration Menu*** screen, highlight EXIT AND SAVE CHANGES and press **Focus Far** to save.

Note: When a zero is encountered in the Preset column, the Sequence will stop incrementing and return to Step 1.

Running Sequences 1-16

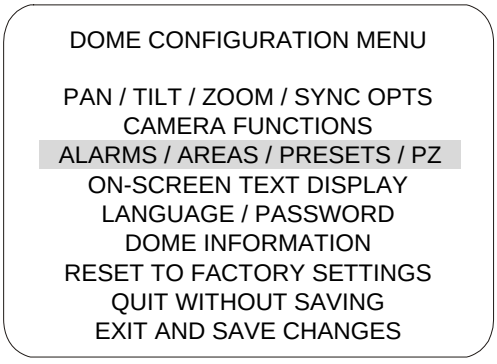
Two options are available for running Sequences:

- Option 1 – If your keyboard supports the ***DirectSet command,*** you can use it to run a Sequence immediately (see DirectSet Menu, page 8). Consult your keyboard manual for information on ***DirectSet*** functions.
- Option 2 - Use the ***Set Home Position*** method to schedule one Sequence to run when the dome returns to its home position (after a defined period of inactivity).

Follow the steps below to run Sequences from the ***Set Home Position*** screen:

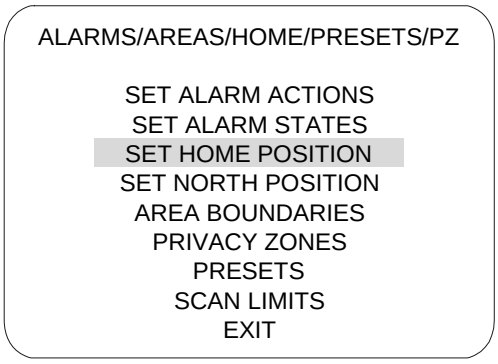
1. Access the ***Dome Configuration Menu*** (Figure 14.) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 14.



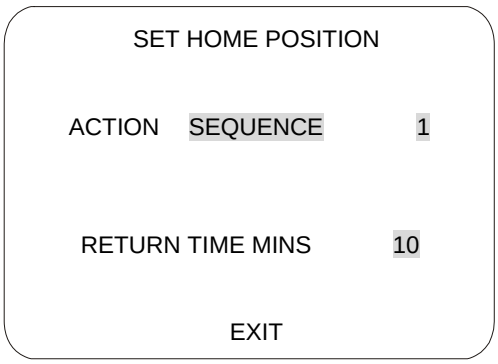
2. Use the joystick to highlight ***Alarms / Areas / Home / Presets / PZ*** and Press **Focus Far** to select. The ***Alarms / Areas / Home / Presets/PZ*** screen appears (Figure 15.).

Figure 15.



3. Use the joystick to highlight ***Set Home Position*** and press **Focus Far** to select. The ***Set Home Position*** screen appears (Figure 16.).

Figure 16.



4. On the highlighted ACTION field, press the **Zoom In/Out** button until Sequence appears.
5. Use the joystick to highlight the number field. Press the **Zoom In/Out** button until your desired Sequence number appears.
6. Use the joystick to highlight the RETURN TIME MINS field. Press the **Zoom In/Out** button to specify when the dome is to return to its home position after a period of inactivity (1-60 min.). This will trigger the Sequence to run.
7. Use the joystick to highlight the EXIT field and press **Focus Far** to select.
8. Continue to exit until completely out of all programming menus.

Note: If a Preset or a Pattern is called by either an alarm or motion detection while a Sequence is running, the Sequence will be interrupted.

Pattern Options: Fixed or Variable Speed

A Pattern is a series of programmed pan/tilt/zoom dome movements. The SpeedDome Ultra VII with EIS allows you to create fixed speed or variable speed Patterns (variable speed Patterns are dependent on system capability).

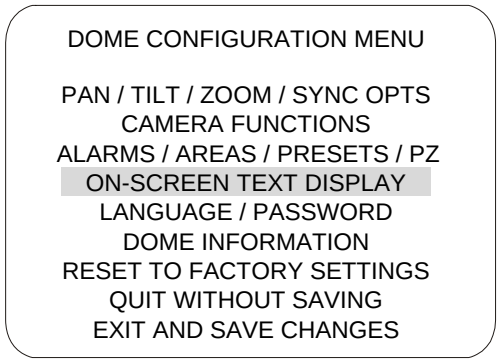
The SpeedDome Ultra VII with EIS provides three options when configuring the system for Patterns:

Setting	Description
Off	Allows programming of three *fixed* speed Patterns. The three Patterns are limited to a total of 99 pan/tilt/zoom movements (e.g., if one Pattern uses 50 movements, the remaining two Patterns are limited to a total of 49 movements). Note: The VM96 system only supports the OFF setting.
3	Allows programming of three *variable* speed Patterns. Each Pattern can have up to 99 pan/tilt/zoom movements.
16	Allows programming of 16 *variable* speed Patterns. Each Pattern can have up to 99 pan/tilt/zoom movements.

Use the following steps to configure the dome for Patterns:

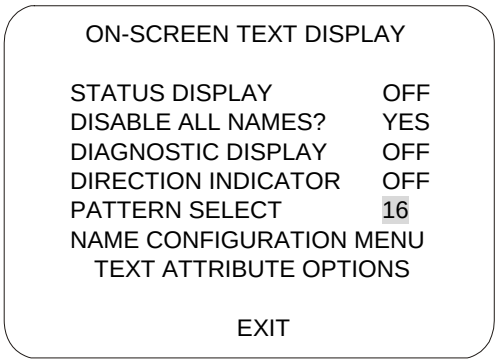
1. Enter the ***Dome Configuration Menu*** (Figure 17.) by pressing **Iris Open**, **Focus Far** and **Zoom Out** on your controller.

Figure 17.



2. Use the joystick to highlight ***On-Screen Text Display*** and press **Focus Far** to select. The On-Screen Text Display screen appears (Figure 18.).

Figure 18.



3. Use the joystick to highlight the PATTERN SELECT field and press **Zoom In/Out** to select ***Off***, ***3,*** or ***16***.
4. Use the joystick to highlight EXIT and press **Focus Far** to select. The ***Dome Configuration Menu*** appears.
5. Use the joystick to highlight EXIT AND SAVE CHANGES and press **Focus Far** to save.

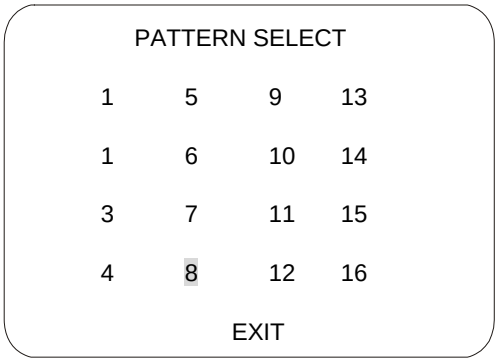
Recording Patterns When Configured for 16

Recording Patterns when the ***Pattern Select*** field is set for ***Off***, ***3***, or ***16*** is accomplished through keyboard commands (consult your keyboard's user guide). However, additional steps are required when the Pattern Select field is set for ***16***.

Follow the steps below to record 16 variable speed Patterns:

1. Enter the appropriate keyboard commands to record a Pattern, using 1, 2, or 3 as your Pattern number (Consult your keyboard user guide for specific steps.). The ***Pattern Select*** screen appears (Figure 19.)

Figure 19.



2. Use the joystick to highlight a desired Pattern number (1-16). Press **Focus Far** to continue.
3. Pan/tilt/zoom the dome as desired for the Pattern.
4. Execute the keyboard's Pattern save command to save the Pattern.

Running 16 Patterns

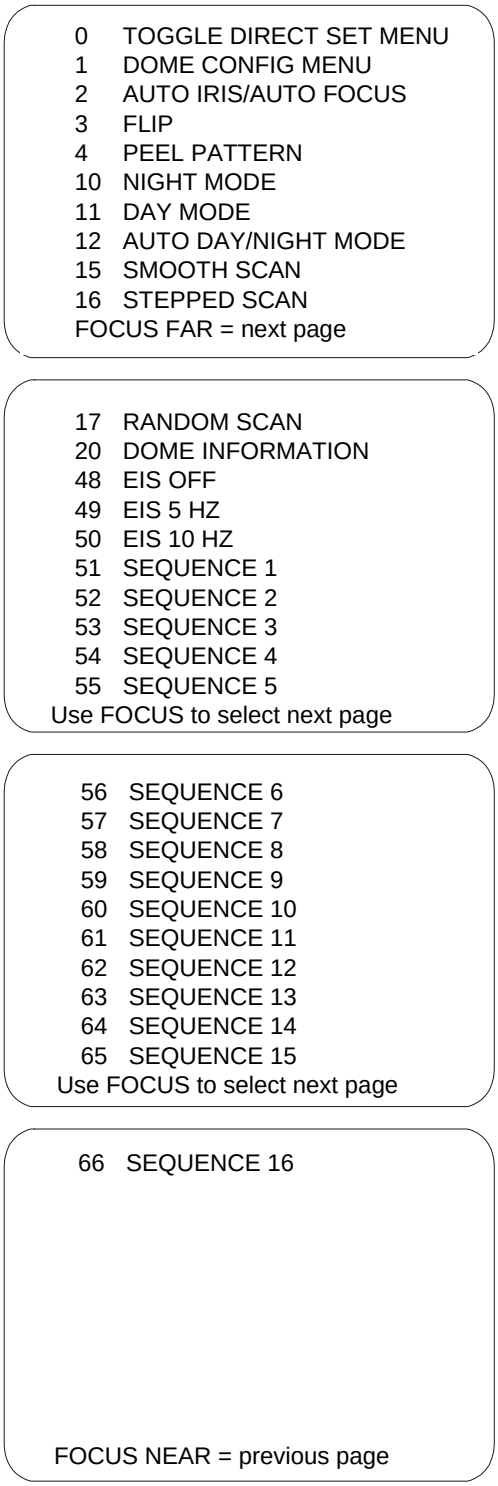
When a dome is configured for 16 Patterns, running a Pattern requires displaying the ***Pattern Select*** screen (Figure 19). Follow the steps below to run a Pattern.

1. Enter the appropriate keyboard command to run Patterns 1, 2, or 3. The ***Pattern Select*** screen appears.
2. Move the joystick to highlight the desired Pattern number (1-16) to run.
3. Press **Focus Far** to select. The ***Pattern Select*** screen disappears and the Pattern runs.

DirectSet Menu

The DirectSet Menu provides easy access to commonly used SpeedDome Ultra VII with EIS features when used with compatible controllers. This allows you to change or activate features without starting the dome configuration menu. See the following examples of the DirectSet menu (Figure 20).

Figure 20: Day/Night Camera Dome DirectSet Menu (4 screens)



To access a feature on the menu, enter the number and press the **DirectSet** button (varies by controller). Table 1 provides a description of the available options.

Table 1: DirectSet Menu Options

Command	Description
0+DirectSet	Toggle DirectSet Menu: Toggles between displaying and hiding the DirectSet menu.
1+DirectSet	Dome Config Menu: Displays the SpeedDome Ultra configuration menu.
2+DirectSet	Auto Iris/Auto Focus: Resumes Auto Focus/Auto Iris mode.
3+DirectSet	Flip: Rotates the SpeedDome 180° from its current pointing direction. This is the same as pressing the Flip button on compatible controllers.
4+DirectSet	Peel Pattern: Runs the default Apple Peel Pattern. This is the same as pressing the Peel button on compatible controllers.
10+DirectSet	Night Mode: Sets the dome IR mode setting to ON. The dome switches to full-time black-and-white (B/W) mode.
11+DirectSet	Day Mode: Sets the dome IR mode setting to OFF. The dome switches to full-time color mode.
12+DirectSet	Auto Day/Night Mode: Resumes the most recently selected automatic IR mode setting. • Auto High: B/W mode activates ~30 lux. • Auto Mid: B/W mode activates ~3 lux. • Auto Low: B/W mode activates ~ 0.5 lux
15+DirectSet	Smooth Scan: Initiates a smooth 360° clockwise rotation around the dome axis using the current tilt, zoom and focus settings.
16+DirectSet	Stepped Scan: Initiates a clockwise rotation around the dome axis pausing briefly every 10° (at 1x zoom) for 3 seconds using the current tilt, zoom and focus settings.
17+DirectSet	Random Scan: Initiates a clockwise or counter-clockwise rotation around the dome axis using the current tilt, zoom and focus settings. The dome pauses randomly as it rotates around the axis.
20+DirectSet	Dome Information: Displays the Dome Information screen available through the dome configuration menu.
48+DirectSet	Turns off Electronic Image Stabilization.
49+DirectSet	Sets Electronic Image Stabilization sensitivity at 5 hz.
50+DirectSet	Sets Electronic Image Stabilization sensitivity at 10 hz.
51+DirectSet	Sequence: Runs Sequence 1
52+DirectSet	Sequence: Runs Sequence 2
53+DirectSet	Sequence: Runs Sequence 3
54+DirectSet	Sequence: Runs Sequence 4
55+DirectSet	Sequence: Runs Sequence 5
56+DirectSet	Sequence: Runs Sequence 6
57+DirectSet	Sequence: Runs Sequence 7
58+DirectSet	Sequence: Runs Sequence 8
59+DirectSet	Sequence: Runs Sequence 9
60+DirectSet	Sequence: Runs Sequence 10
61+DirectSet	Sequence: Runs Sequence 11
62+DirectSet	Sequence: Runs Sequence 12
63+DirectSet	Sequence: Runs Sequence 13
64+DirectSet	Sequence: Runs Sequence 14
65+DirectSet	Sequence: Runs Sequence 15
66+DirectSet	Sequence: Runs Sequence 16
255+DirectSet	Admin: Reset Dome (Baxall)

SpeedDome VII with EIS Compatibility

Controller	Generator/Converter	Protocol	Presets	Patterns	Camera Range
AD1024/MP1024	AD2091	Manchester	64	16	1-1024
	AD2083-02B	RS-422 (Duplex)	16		
	AD2083-02C (AD2083-02B ver 11YB)	RS-422 (Simplex/Duplex)	60		
AD1650	None	Manchester	64	16	1-128
	AD2083-02B	RS-422 (Duplex)	16		
	AD2083-02C (AD2083-02B ver 11YB)	RS-422 (Simplex/Duplex)	60		
AD168/MP168	CCM	Manchester	64	16	1-180
		SensorNet			
		RS-422 (Duplex)			
	AD2091	Manchester			1-180
	AD2083-02B	RS-422 (Duplex)	16		
	AD2083-02C (AD2083-02B ver 11YB)	RS-422 (Simplex/Duplex)	60		
AD2050	AD2091	Manchester	64	16	1-1024
	AD2083-02B	RS-422 (Duplex)	16		
	AD2083-02C (AD2083-02B ver 11YB)	RS-422 (Simplex/Duplex)	60		
AD2150	None	Manchester	64	16	1-32
	AD2083-02B	RS-422 (Duplex)	16		
	AD2083-02C (AD2083-02B ver 11YB)	RS-422 (Simplex/Duplex)	60		
AD32/VM32	None	SensorNet	4	16	1-32
	RCSN422	RS-422 (Duplex)			
	RCSN422 (ver 1.02)				
		RS-422 (Simplex)	0	0	
AD32E/VM32E	None	SensorNet	96	16	1-32
	RCSN422	RS-422 (Duplex)	4		
	RCSN422 (ver 1.02)		96		
		RS-422 (Simplex)	0	0	
ADMP48 (Plus)	None	Manchester	64	3 (OFF mode)	1-288
		SensorNet	96		
		RS-422 (Simplex/Duplex)			

Controller	Generator/Converter	Protocol	Presets	Patterns	Camera Range
ADMPLT	None	SensorNet	96	16	1-32
		SensorNet-V			
		AD UTC			
	RCSN422 (ver 1.02)	RS-422 (Duplex/Simplex)			
ADTT16/VM16	None	SensorNet	96	16	1-16
	RCSN422	RS-422 (Duplex)	4		
	RCSN422 (ver 1.02)		96		
		RS-422 (Simplex)	0	0	
ADTT16E/VM16E (ver 2.01)	None	SensorNet	96	16	1-64
	RCSN422	RS-422 (Duplex)	4		1-32
	RCSN422 (ver 1.02)		96		
		RS-422 (Simplex)		3	
Intellex	AD168[1]	CCM Manchester	32	16	1-180
		CCM SensorNet			
		CCM RS-422 (Duplex)			
		AD2091 Manchester			
		AD2083-02B RS-422 (Duplex)	16		
		AD2083-02C RS-422 (Simplex/Duplex)	32		
	MP48[1]	Manchester			1-48
		RS-422 (Duplex)			
		SensorNet			
	AD1024 Matrix[1]	AD2091 Manchester	4		1-1024
		AD2083-02B RS-422 (Duplex)			
		AD2083-02C RS-422 (Simplex/Duplex)			
	VM96TT[1]	SensorNet	32	3 (OFF mode)	1-96
		RS-422 (Duplex)			
	RS422 Dome[1]	RS-422 (Duplex), (Simplex)	4	16	1-99
	VM16/ADTT16	SensorNet	96		1-16
		RCSN422 RS-422 (Duplex)			
		RCSN422 v1.02 RS-422 (Simplex)	0	0	
	VM16E/ADTT16E	SensorNet	96	16	1-64
		RCSN422 RS-422 (Duplex)			1-32
		RCSN422 v1.02 RS-422 (Simplex)		3	
	USB CCTV Module (ADACSNET)	SensorNet	96	3	1-254

Controller	Generator/Converter	Protocol	Presets	Patterns	Camera Range
VM1	None	RS-422 (Duplex)	4	16	1-58
VM8	None	SensorNet	0	0 (only Apple Peel)	1-8
VM96	None	SensorNet RS-422 (Duplex)	9,999 (across all dome, stored by VM96)	3 (OFF mode)	1-96
VR48	None	SensorNet RS-422 (Duplex)	96	3	1-48
		Manchester	64	16	

NOTES:

1 Certain Intellex handlers do not support the setting of presets or patterns. These must be set previously by way of the matrix switcher/controller.

Controllers and Software tested in the matrix above:

Controller/Adapter	Software Version
AD1024/MP1024	V14FR5
AD1650	UF4W6
AD168/MP168	V3.30
AD2050	UF3M9
AD2083-02B	0701-11YA-156A
AD2083-02C	0701-11YB-156A
AD2150	V13HR0
ADACSNET	0710-0228-0101
ADTT16/VM16	F 0701-2008-0200, E 0701-2007-0200
ADTT16E/VM16E (ver 2.01and higher)	F 0701-2834-0202, E 0701-2833-0103
Intellex	version 3.2.42.158 and 3.2.88.325-SP1
MP48 Plus	v1.1.4 (future release)
MP48/VR48	v1.06
MPLT	v1.1.13
RCSN422	F 0701-2814-0101, E 0701-9070-0100
RCSN422 (ver. 1.02)	F 0701-2814-0102, E 0701-9070-0100
VM1	Rev. M
VM32/AD32	F 0701-2493-0104, E 0701-2492-0101
VM32E/AD32E	F 0701-2836-0102, E 0701-2835-0100
VM8	0701-0088-0101
VM96	v5.20

Specifications-Indoor Dome

Operational

Pan/Tilt:

- Manual Pan Speed ..... 0.2°-100° per second (scaled to zoom position)
- Manual Tilt Speed ..... 0.25°-100° per second (scaled to zoom position)
- Preset Pan/Tilt Speed .....220° per second maximum
- Pan Travel .....360° continuous rotation
- Tilt Travel .....>90°
- Pan/Tilt Accuracy .....±0.5°

23X (Day/Night) Camera Zoom Functions:

- Optical Zoom 23X
- Digital Zoom 10X
- Zoom Pause ..... 23X selectable or 35X default
- Total Zoom 230X
- Zoom Stop ..... 46X, 69X, 92X (default), 115X, 138X 161X, 184X, 207X, 230X
- Zoom/Focus Accuracy .....±0.5%

Auto Synchronization:

- Line Locked .....Remote V-phase adjustment
- Internal .....Built-in sync generator

Address Range 1-255

Quick View™ Access Time	<1 second to position. Full zoom in <4 seconds. Focus on VM16, VM32 and VideoManager systems is <1 second. Focus on VM96 and RV2715 systems is <7 seconds
Programmable Patterns	Up to 16 depending on host
Program Storage	256 Kbytes of Flash memory
Data Storage	128 Kbytes of SRAM
Menu Languages	English, French, German, Spanish, Italian, and Portuguese

Electrical

Input Voltage ..... 18-30Vac, 50/60 Hz
NEC Class 2 LPS

Design Tolerance ..... 16-36Vac, 50/60 Hz

Power Consumption .....16W max.

Current .....0.85A max.

Allowable Drop Out 100ms

Power On In-Rush Current..... 1.5A

Surge Protection:

Video Output	Low capacitance Zener suppressor 6.5V, 1500W
Power Line	TVS rated at 60V, 1.5 joules, 250A 8/20µs impulse
RS-422	TVS rated at 9.8V/1A, 20V/25A, 500W, 8/20µs impulse
Manchester/SensorNet 485 ..	Gas discharge tube rated at: 8/20µs impulse discharge current of 10kA, ten 8/20µs impulse discharge current of 5kA Isolation transformer coupled 2000Vrms. PTC fuse protects transformer. TVS rated at 9.8V/1A, 20V/25A, 500W, 8/20µs impulse
Alarm Input.....	TVS rated at 9.8V/1A, 20V/25A, 500W, 8/20µs impulse

Alarms Inputs/Control Outputs:

When no I/O board is used:

Inputs	1 dry contact/3.5mA sink
Outputs	1 open collector driver @ 12Vdc, 40mA

When I/O board is used:

Inputs	4 dry contacts/3.5mA sink
Outputs	4 open collector drivers @ 12Vdc, 40mA

Environmental

Operating Temperature ..... –10° to 50°C (14° to 122°F)

Relative Humidity ..... 0 to 95% non-condensing

Storage Temperature ..... –20°C to 65°C (–4°F to 149°F)

Mechanical

Height 20.8cm (8in)
Eyeball Diameter 12cm (4.7in)
Weight:
- Housing and Eyeball ..... 1.36kg (3 lbs)
- Base (standard) ..... 0.09kg (0.20 lbs)
- Base (with I/O board) ..... 0.16kg (0.35 lbs)

Lens and Bubble Densities

Eyeball Lens f0
Bubbles:
- RUCLR (Clear) f0
- RUSLV (Silver) ..... f1.5 to f2
- RUSMK (Smoke) f0.5
- RUGLD (Gold) ..... f1.5 to f2

Specifications-23X Camera with EIS

Type ..... Interline transfer 1/4in CCD array
Scanning Area ..... 3.2 (H) x 2.4 (V) mm
Scanning System ..... 2:1 interlace
Video Out ..... 1.0 Vp-p/75 ohms composite
Signal-to-Noise ..... 50 dB (typical)

Horizontal Resolution ..... 470 lines at center
Minimum Illumination ..... 0.5 lux (AGC On, 20 IRE)
0.03 lux with 1/4 s open shutter
0.01 lux in IR mode
0.009 lux in IR mode with 1/4 s open shutter
White Balance ..... Through-the-Lens (TTL) Automatic Tracing White balance (ATW)

NTSC:
Effective Pixels ..... 962 (H) x 654 (V) pixels
Scanning ..... 525 lines, 60 fields, 30 frames
Horizontal 15.734kHz
Vertical 59.9Hz

Lens Design

Type ..... Aspherical
Focal Length ..... 3.6 to 82.8mm
Aperture ..... f1.6 (wide angle), f3.7 (telephoto)
Viewing Angle (equivalent to 8-80 mm on 1/2in CCD array, or 11-110 mm on 2/3in CCD array):

- 3.6mm ..... 54.0°(H) x 40.5°(V)
- 82.8mm ..... 2.5°(H) x 1.9°(V)

Field-of-View Formulas:

$$\frac{\text{3.2mm* x distance from camera (m)}}{\text{Focal length (mm)}} = \text{Horizontal view (m)}$$

$$\frac{\text{2.4mm** x distance from camera (m)}}{\text{Focal length (mm)}} = \text{Vertical view (m)}$$

* Horizontal scanning area of pickup device (mm) in camera.
** Vertical scanning area of pickup device (mm) in camera.

Example: Wide angle view with lens at 6mm and viewed object at 10m.

$$\frac{\text{3.2mm x 10m}}{\text{6mm}} = \text{5.33m Horizontal view (m)}$$

$$\frac{\text{2.4mm x 10m}}{\text{6mm}} = \text{4.0m Vertical view (m)}$$

Declarations

Regulatory Compliance

Emissions	47 CFR, Part 15, Class A
	ICES-003
	EN55022, Class B
	EN61000-3-2
	EN61000-3-3
	AS/NZ 3548, Class A
	CISPR 22
Immunity	EN50130-4
Safety	UL1950
	CSA C22.2 No. 950
	EN 60950
	IEC 60950

FCC COMPLIANCE: This equipment complies with Part 15 of the FCC rules for intentional radiators and Class A digital devices when installed and used in accordance with the instruction manual. Following these rules provides reasonable protection against harmful interference from equipment operated in a commercial area. This equipment should not be installed in a residential area as it can radiate radio frequency energy that could interfere with radio communications, a situation the user would have to fix at their own expense.

EQUIPMENT MODIFICATION CAUTION: Equipment changes or modifications not expressly approved by Sensormatic Electronics Corporation, the party responsible for FCC compliance, could void the user's authority to operate the equipment and could create a hazardous condition.

Other Declarations

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